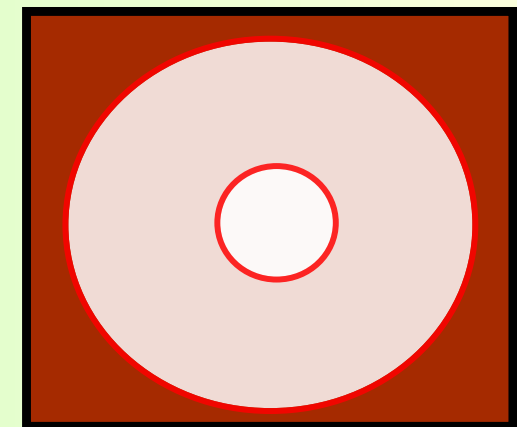


Circuits	Analysing circuits
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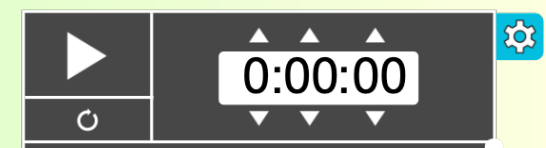
Learning objectives	MUST (C)	Recall rules of circuit analysis, including resistor combinations
	SHOULD (B)	Apply rules to solve multi-resistor circuits
	COULD (A/A*)	Apply rules to solve circuits with multiple sources of emf

STARTER: Use the mark scheme to mark your homework

Extension: How many rules have we covered that you could use in solving circuit problems (e.g. finding unknown resistances, currents...)

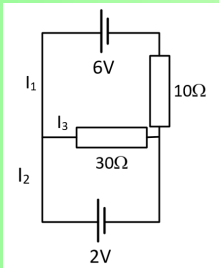


CIRCLE MAP

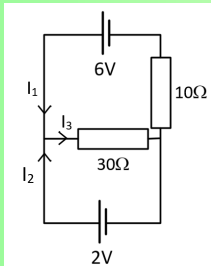


COULD (8/9)

Apply rules to solve circuits with multiple sources of emf and/or internal resistance of cells



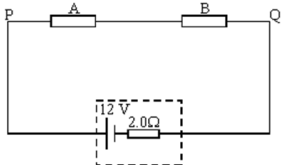
Solve this circuit. Use the prompts on your worksheet.



Resistor	p.d. (V)	I (A)
30 Ω	2.0	0.067
10 Ω	4.0	0.4

I1: I2: I3:

In the circuit shown, the battery has an emf of 12 V and an internal resistance of 2.0 Ω. The resistors A and B each have resistance of 30 Ω.



(i)

(iii)



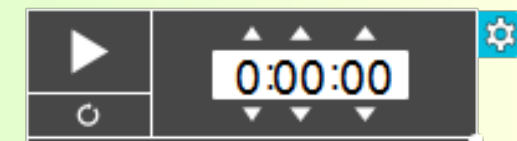
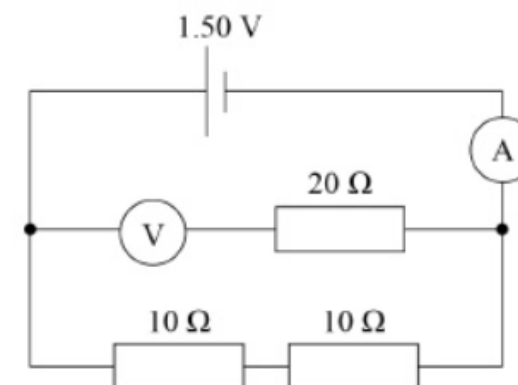
Circuits	Analysing circuits
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Learning objectives	MUST (C)	Recall rules of circuit analysis, including resistor combinations
	SHOULD (B)	Apply rules to solve multi-resistor circuits
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PLENARY:

	Current / A	Voltage / V
A	0.075	0.75
B	0.075	1.50
C	0.150	0.75
D	0.150	1.50

The circuit shows a cell with negligible internal resistance connected in a circuit with three resistors, an ammeter and a voltmeter.



This question proved a challenge (28.3% correct); the most common incorrect answer selected was distractor C. These students reasoned that the pd must be divided between the voltmeter and the 20 Ω resistor in a 1:1 ratio despite the voltmeter having an infinite resistance. Similarly, they were unaware that the total resistance in the circuit was 20 Ω rather than 10 Ω .